Bay Area Air Quality Management District

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Permit Evaluation
and
Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT

for

Redwood Landfill, Inc
Facility #A1179

Facility Address:
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Novato, CA 94948

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Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a designated facility as defined by BAAQMD Regulation 2-6-204. The Standards of Performance for Municipal Solid Waste (MSW) Landfills (40 CFR Part 60, Subpart WWW) require the owner or operator of a landfill that is subject to this part and that has a design capacity of greater than or equal to 2.5 million megagrams and 2.5 million cubic meters to obtain an operating permit pursuant to Part 70. As discussed in more detail below in Sections B and C.IV of this report, this facility is subject to this NSPS regulation and meets the designated facility criteria listed in 40 CFR § 60.752(b).

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, record keeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This facility identifier is also considered to be the identifier for the permit.

B. Facility Description

Redwood Landfill, Inc. (Facility # A1179) is located east of Highway 101 in a rural area of Marin County just north Novato, CA. Redwood Landfill occupies a 600-acre site that includes a 420-acre active municipal solid waste (MSW) landfill and numerous related operations including sewage sludge storage and disposal, composting and co-composting (with sewage sludge), green waste recycling and reuse, leachate management equipment, gasoline storage and dispensing, and landfill gas collection and control equipment. Portions of this site are currently leased to independent operators for auto wrecking and storage and other waste recovery or recycling activities.

The landfill has been accepting waste since 1958. The site currently accepts non-hazardous municipal solid waste, dewatered non-hazardous sewage sludge, green waste, asbestos (with less than 1% friable asbestos), shredded tires, and some designated wastes such as petroleum contaminated soils, incinerator ash, grit, grease, waste food processing oil, treated wood, dredge

materials, and fill materials. In July 1995, the landfill was issued a revised Solid Waste Facility Permit that approved an increase to the design capacity of the landfill. In accordance with 40 CFR § 60.751, this 1995 design capacity expansion is considered a modification of the landfill. Therefore, the landfill is subject to the NSPS for MSW Landfills (40 CFR, Part 60, Subpart WWW).

Redwood Landfill, Inc. has the following permitted operations: one sewage sludge storage area (S-2), the active MSW landfill (S-5), green waste recycling operations (S-25 and S-41), composting and co-composting operations (S-28, S-34, S-35, S-37, S-38, and S-39), five diesel fired internal combustion engines (S-40, S-45, S-46, S-47, and S-48, and S-49) that provide power to a tub grinder, pumps, a tipper, and screens, one diesel fired engine (S-49) for a back-up generator, a landfill gas fired leachate evaporator (S-50), a landfill gas flare (A-50), a gasoline dispensing facility (S-55), and water sprays for dust control (A-19 and A-41). All currently permitted operations are included in this initial MFR Permit. In addition, Redwood Landfill, Inc. has been issued an Authority to Construct for three landfill gas fired internal combustion engines (S-52, S-53, and S-54). Since the landfill gas fired engines have not been constructed, these engines are not included in this initial MFR Permit. If Redwood Landfill installs these engines in the future, the MFR Permit will be modified to include these new sources.

The main source of air emissions at this facility is the S-5 Redwood Landfill. This active landfill generates significant fugitive particulate matter emissions due to waste disposal activities, vehicle traffic, cover material handling operations, and wind erosion. In addition, the waste decomposition process generates landfill gas. Landfill gas contains mainly methane, carbon dioxide, and small amounts of non-methane organic compounds (<1%) and sulfur compounds (<400 ppmv). Many of the non-methane organic compounds (NMOCs) found in landfill gas are precursor organic compounds (POC), and some NMOCs are hazardous air pollutants (HAP). Various local, state, and federal regulations require that landfill gas be collected and controlled to reduce POC and HAP emissions to the atmosphere. In order to meet these requirements, the landfill at this site is equipped with an active landfill gas collection system and a landfill gas control system.

Active landfill gas collection systems consist of perforated pipes that are buried in the refuse at numerous locations, solid pipes referred to as laterals and headers, and blowers. The perforated pipes are called horizontal collectors or vertical wells, depending on the orientation of the pipes within the refuse. The gas collection system at this site includes 39 horizontal collectors and 44 vertical wells. The solid pipes connect the horizontal collectors and vertical wells to the blowers. The blowers collect landfill gas by creating a vacuum in the buried refuse that draws landfill gas into the pipes. The blowers vent this collected landfill gas to the landfill gas control system.

The landfill gas control system at this site currently includes the A-50 Landfill Gas Flare and the S-50 Leachate Vaporator. The flare is the main control method and is capable of handling all of the landfill gas expected to be generated by this landfill. The S-50 Leachate Vaporator is an optional device that is only used when leachate evaporation is necessary. The flare and leachate vaporator (when it is operating) destroy most of the methane, organic compounds, sulfur compounds, and HAPs in the landfill gas, but also produce secondary combustion pollutants

including: nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM_{10}), formaldehyde, and hydrogen chloride.

The green waste recycling, composting, and co-composting operations are additional sources of particulate matter emissions. Small amounts of precursor organic compounds (POC) are emitted from the sludge storage areas, composting and co-composting operations, and the gasoline dispensing facility. Odorous compounds, including hydrogen sulfide, may be emitted from any sludge storage, handling, or processing operations.

The diesel fired internal combustion engines produce combustion emissions including NO_x, CO, POC, SO_2, PM_{10}, and HAPs.

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order presented in the permit.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Condition I.J has been added to clarify that the capacity limits shown in Table II-A are enforceable limits.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S-24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons of a "regulated air pollutant," as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a "hazardous air pollutant," as defined in BAAQMD Rule 2-6-210, per year.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device is identified by an A and a number (e.g., A-24).

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered a significant source pursuant to the definition in BAAQMD Regulation 2-6-239. This facility does not have any significant sources that do not have District Permits to Operate.

Following are explanations of the differences in the equipment list between the time that the facility originally applied for a Title V permit and the permit proposal date. Numerous sources or operations related to sludge disposal, green waste processing, and composting have been discontinued and the equipment has been removed from the facility. The following sources have therefore been removed from the lists of permitted equipment: S-1, S-3, S-4, S-24, S-28, S-27, S-29, S-30, S-31, S-32, S-33, S-36, S-44, S-101, S-102, S-103, S-104, S-105, S-106, S-107, S-108, A-5, A-26, A-30, A-32, A-44, A-101, A-102, and A-103. Several sources and abatement devices have been permitted since Redwood Landfill last modified their Title V permit application in May 2000, because the equipment was either new to the facility or lost an exemption from permitting requirements. The following new sources and abatement devices have been added to this permit: S-40, S-41, S-42, S-45, S-46, S-47, S-48, S-49, S-55, and A-41.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules and Regulations
- SIP Rules (if any) are listed following the corresponding District regulations. SIP rules are District regulations that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are federally enforceable and a "Y" (yes) indication will appear in the "Federally Enforceable" column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portions of the SIP rule are cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

Complex Applicability Determinations

Landfills and landfill gas combustion equipment are subject to BAAQMD Regulation 8, Rule 34. This regulation requires landfills that have more than 1 million tons of refuse in place to collect and control the landfill gas that is generated by waste decomposition and specifies numerous operating, monitoring, and reporting requirements for subject operations. Regulation 8, Rule 34 has required that Redwood Landfill (S-5) be controlled by an active landfill gas collection system and a landfill gas control system since 1987. The current landfill gas control system includes the A-50 Landfill Gas Flare and the S-50 Leachate Vaporator.

Landfills and landfill gas combustion equipment may also be subject to either the federal New Source Performance Standards (NSPS) for Municipal Solid Waste (MSW) Landfills or the Emission Guidelines (EG) for MSW Landfills. The federal NSPS for MSW Landfills (40 CFR Part 60, Subpart WWW) applies to landfills that have had a design capacity modification after May 30, 1991. As discussed previously, the 1995 design capacity increase to the landfill at this site was considered a modification pursuant to 40 CFR § 60.751. Therefore, the S-5 Redwood Landfill is subject to this NSPS (40 CFR, Part 60, Subpart WWW). The design capacity of the Redwood Landfill is now 19.1 million cubic yards (14.6 million m^3) and more than 17.1 million tons (15.5 million Mg) of waste.

In accordance with 40 CFR, Part 60, Subpart WWW and BAAQMD Regulation 8, Rule 34, large landfills (with a design capacity greater than or equal to 2.5 million Mg and greater than or equal to 2.5 million m^3) must be equipped with landfill gas collection and control systems. Subject landfills and the associated collection and control systems were required to meet numerous operating, monitoring, and reporting requirements pursuant to Subpart WWW and Regulation 8, Rule 34. These requirements are specified in detail in Section IV of the permit. Landfill operations and landfill gas combustion devices are also subject to numerous other BAAQMD regulations and permit conditions. Regulation 6 is listed as a source-specific applicable requirement for the landfill (S-5), because the landfill is operating and will produce particulate emissions due to waste deposition, cover material application, and vehicle traffic. All applicable requirements are described in Section IV of the permit.

None of the other sources at this facility are subject to any federal requirements. However, these sources are subject to several BAAQMD regulations and permit conditions. All applicable requirements are described in Section IV of the permit.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
- 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

The BAAQMD Compliance and Enforcement Division has conducted a review of compliance for the period of June 12, 2002 to June 13, 2003 and found no records of compliance problems at this facility. The compliance report is contained in Appendix A of this permit evaluation and statement of basis.

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

While the District has authority to revise the existing permits, and is doing so here concomitantly with the Title V process, it also has authority to supplement the terms of existing permits through the Title V process itself. When necessary to meet Title V requirements, additional monitoring, record keeping, or reporting has been added to the permit.

All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all 'strike-out" language will be deleted; all "underline" language will be retained.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

Conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the APCO to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO that limits a source to the operations described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

The reasons for the changes to each condition are discussed below.

Condition # 96 for: S-2 Sewage Sludge Storage, Main Pond

Part 1: This part was identified as a non-federally enforceable condition by adding an asterisk and the basis was identified.

Condition # 13123 for: S-28, S-34, S-35, S-37, S-38, S-39, and A-18

Minor text changes were made to Parts 2-8 for clarity and the non-federally enforceable conditions (Parts 6-8) were identified.

Part 5: Text was added to require the Permit Holder to observe the operations of these sources for visual emissions and to take corrective actions to prevent these emissions in order to assure compliance with the Regulation 6-301 Ringelmann 1.0 limit.

Condition # 14098 for: S-55 Non-Retail Gasoline Dispensing Facility # 8573

The basis was added to this condition.

Condition # 16066 for: S-25 Yard and Green Waste Stockpiles

Minor text changes were made to Parts 2, 4, and 5 for clarity and the non-federally enforceable conditions (Part 5) were identified.

Part 3: Text was added to require the Permit Holder to observe the operation of this source for visual emissions and to take corrective actions to prevent these emissions in order to assure compliance with the Regulation 6-301 Ringelmann 1.0 limit.

Condition # 16516 for: S-55 Non-Retail Gasoline Dispensing Facility # 8573

The basis was added to this condition.

Condition #17842 for: S-45 Pumpmaster Engine

Minor text changes were made to Parts 1-3 for clarity.

Part 3e: A record keeping requirement was added for vendor certifications of the fuel oil sulfur content in order to demonstrate compliance with the Regulation 9-1-304 liquid fuel sulfur content limit of 0.5% sulfur by weight.

Part 4: Text was added to require the Permit Holder to observe the operation of this source for visual emissions and to take corrective actions to prevent these emissions in order to assure compliance with the Regulation 6-301 Ringelmann 1.0 limit.

Condition # 17843 for: S-46 Tipper Engine

Minor text changes were made to Parts 1-3 for clarity.

Part 3e: A record keeping requirement was added for vendor certifications of the fuel oil sulfur content in order to demonstrate compliance with the Regulation 9-1-304 liquid fuel sulfur content limit of 0.5% sulfur by weight.

Part 4: Text was added to require the Permit Holder to observe the operation of this source for visual emissions and to take corrective actions to prevent these emissions in order to assure compliance with the Regulation 6-301 Ringelmann 1.0 limit.

Condition # 17844 for: S-47 PACO Water Pump Engine

Minor text changes were made to Parts 1-3 for clarity.

Part 3e: A record keeping requirement was added for vendor certifications of the fuel oil sulfur content in order to demonstrate compliance with the Regulation 9-1-304 liquid fuel sulfur content limit of 0.5% sulfur by weight.

Part 4: Text was added to require the Permit Holder to observe the operation of this source for visual emissions and to take corrective actions to prevent these emissions in order to assure compliance with the Regulation 6-301 Ringelmann 1.0 limit.

Condition # 17845 for: S-48 Retec Power Screens Engine

Minor text changes were made to Parts 1-3 for clarity.

Part 3e: A record keeping requirement was added for vendor certifications of the fuel oil sulfur content in order to demonstrate compliance with the Regulation 9-1-304 liquid fuel sulfur content limit of 0.5% sulfur by weight.

Part 4: Text was added to require the Permit Holder to observe the operation of this source for visual emissions and to take corrective actions to prevent these emissions in order to assure compliance with the Regulation 6-301 Ringelmann 1.0 limit.

Condition # 19609 for: S-50 Leachate Vaporator

Minor text changes were made to Parts 1, 4, 6, 7, and 8 for clarity.

Part 3: The ability to use propane as a start-up fuel was added to this part to reflect the current operating procedures for S-50.

Part 5: At the applicant's request the District provided a list of flow rates and NOx concentrations that would ensure compliance with this 10 pound/day limit on NOx emissions from S-50.

Part 7: The 97% TOC destruction efficiency requirement was deleted because it is obsolete. It was replaced by the more stringent NMOC emission limits in Regulation 8-34-301.4.

Part 9: The annual source test required by Regulation 8-34-412 is described in more detail in Part 9. In addition, an annual source at the leachate vaporator exhaust for NOx and CO was added to demonstrate compliance with the emission limits for these pollutants.

Condition # 19613 for: S-49 Back-up Generator Engine

Part 5: The basis was corrected.

Condition # 19864 for: S-40 Tub Grinder Diesel Engine

Part 2: The basis was corrected.

Part 4: The term "persistent" was clarified.

Condition # 19865 for: S-41 Yard and Green Waste Shredding Operation and A-41 Water Sprays

Part 5: Visible emissions requiring corrective actions were clarified to mean visible emissions that persist for greater than 3 minutes in an hour.

Condition # 19866 for: S-42 Soil and Cover Material Stockpiles

Part 4: Visible emissions requiring corrective actions were clarified to mean visible emissions that persist for greater than 3 minutes in an hour.

Condition # 19867 for: S-5 Redwood Landfill with Gas Collection System, A-18 Water Sprays, and A-50 Landfill Gas Flare

Part 1: Text was added to clarify the link between the design capacity limit and the applicable emission limits that the design capacity limit is protecting. This condition refers to Application # 17552, which is included in Appendix C.

Part 2: Text was added to clarify the link between the decomposable waste limit and the applicable emission limits that the decomposable waste limit is protecting.

Part 3: Text was added to allow the site to exceed the daily waste and sludge acceptance limits if approved by the Lead Enforcement Agency to handle an emergency situation. These daily waste limits will be used to help determine if a modification occurs in the future.

Part 4: A typographical error was corrected.

Part 5: The applicable date was added.

Part 10: The part number reference was corrected and the applicable date was added.

Part 11e: Visible emissions requiring corrective actions were clarified to mean visible emissions that persist for greater than 3 minutes in an hour.

Part 12: Text was revised to clarify that corrective actions are required for the nuisance operation and not necessarily all operations. The permit requirements were clarified to indicate that the permit application requirement applies only if the District notifies the applicant that the mitigation measures necessary to abate a nuisance operation will require permit revisions (such as permit condition modifications, permanent installation of abatement equipment, or other equipment modifications). These permit revisions are expected to occur only in cases where the nuisance cannot be resolved by an isolated or short-term use of a mitigation measure.

Part 14: In response to the Applicant's comments on the preliminary draft of the MFR Permit, the District revised this condition such that the VOC emission calculation procedures apply only to the annual VOC emission limit. For the Regulation 8-2-301 limit (either 15 pounds/day or 300 ppmv of total carbon), the applicant requested to show compliance with the concentration limit rather than the emission rate limit. Compliance with Regulation 8-2-301 will now be demonstrated by using surface VOC emission testing (pursuant to 8-40-604) to show that the soil is not contaminated (per Regulation 8-40-205: $\leq$ 50 ppmv as methane above the soil surface). Therefore, the emissions from the soil could not exceed 300 ppmv of total carbon and compliance with 8-2-301 is assured. Note that the use of Regulations 8-40-205 and 8-40-604 to show compliance with Regulation 8-2-301 requires a permit shield, which has been added to Section IX of the MFR Permit.

Part 17: The reference to permit amendment procedures was corrected.

Part 22: The required minimum combustion zone temperature was corrected using the equation identified in this part, based on the 2002 performance test for the flare, where the average combustion zone temperature was reported to be 1525 ºF during the test period. This part was also reworded for clarity. The applicable effective date was added. The reference to permit amendment procedures was corrected.

Part 30: The annual source test required by Regulation 8-34-412 is described in more detail in Part 30. In addition, an annual source at the flare exhaust for NOx and CO was added to demonstrate compliance with the emission limits for these pollutants.

Part 31: A landfill gas characterization test was added to measure the amounts of total non-methane organic compounds, total reduced sulfur compounds, and specific toxic air contaminants in landfill gas. Organic compounds will be tested for annually. Sulfur compounds will be tested for quarterly. This test is necessary to demonstrate compliance with the limits in Part 18 and Regulation 9-1-302 and is also required by Regulation 8-34-412.

Part 32: The MSW Landfill NESHAP (40 CFR, Part 63, Subpart AAAA) that was adopted by EPA on 1/16/03 requires landfill operators to submit semi-annual reports instead of the annual report required by Regulation 8-34-411. The effective date for this new reporting frequency is January 16, 2004. This permit condition was added in order to establish the semi-annual reporting frequency and to synchronize the reporting periods and submittal dates for this report with the semi-annual MFR monitoring reports that will be required by Section I.F. of the MFR Permit.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The tables below contain only the limits for which there is no monitoring or inadequate monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) the degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements**.** It follows that, although Title V calls for a re-examination of all monitoring**,** there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. When a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation**.** Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate**.**

NO_x Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-50 Leachate Vaporator	BAAQMD Condition # 19609, Part 5	10 pounds/day of NO_x, calculated as NO_2, or $\leq$ 63 ppmv of NO_x, corrected to 3% O_2, dry	Annual Source Test
A-50 Landfill Gas Flare	BAAQMD Condition # 19867, Part 25	0.06 pounds of NO_x, calculated as NO_2, per MM BTU or $\leq$ 15 ppmv of NO_x, corrected to 15% O_2, dry	Annual Source Test

NO_x Discussion:
The District has imposed an annual source test requirement for NO_x limits at landfill gas fired combustion equipment in other Title V permits. Annual source testing is a standard monitoring method for engines that are used for control of landfill gas. The flare and the leachate vaporator control comparable quantities of landfill gas and have much lower emissions. Therefore, annual source testing is adequate.

CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-50 Leachate Vaporator	BAAQMD Condition # 19609, Part 6	10 pounds/day of CO or $\leq$ 103 ppmv of CO corrected to 3% O_2, dry	Annual Source Test
A-50 Landfill Gas Flare	BAAQMD Condition # 19867, Part 26	0.06 pounds of CO per MM BTU or $\leq$ 123 ppmv of CO corrected to 15% O_2, dry	Annual Source Test

CO Discussion:
The District has imposed an annual source test requirement for CO limits at landfill gas fired combustion equipment in other Title V permits. Annual source testing is a standard monitoring method for engines that are used for control of landfill gas. The flare and the leachate vaporator control comparable quantities of landfill gas and have much lower emissions. Therefore, annual source testing is adequate.

SO_2 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-40 Diesel Engine for Tub Grinder, S-45 Pumpmaster Engine, S-46 Tipper Engine, S-47 PACO Water Pump Engine, S-48 Retec Power Screens Engine, S-49 Diesel Engine for Back-up Generator, S-50 Leachate Vaporator, and A-50 Landfill Gas Flare	BAAQMD 9-1-301	Property Line Ground Level SO_2 Limits: $\leq$ 0.5 ppm for 3 minutes and $\leq$ 0.25 ppm for 60 min. and $\leq$ 0.05 ppm for 24 hours	None
S-50 Leachate Vaporator	BAAQMD 9-1-302	Gas Stream SO_2 Limit: $\leq$ 300 ppm (dry)	Quarterly Sulfur Analysis of Landfill Gas
A-50 Landfill Gas Flare	BAAQMD 9-1-302	Gas Stream SO_2 Limit: $\leq$ 300 ppm (dry)	Quarterly Sulfur Analysis of Landfill Gas
S-40 Diesel Engine for Tub Grinder, S-45 Pumpmaster Engine, S-46 Tipper Engine, S-47 PACO Water Pump Engine, S-48 Retec Power Screens Engine, and S-49 Diesel Engine for Back-up Generator	BAAQMD 9-1-304	Fuel Sulfur Content Limit: $\leq$ 0.5% sulfur by weight	Records
S-5 Redwood Landfill	BAAQMD Condition # 19867, Part 18	Concentration of Total Reduced Sulfur Compounds in Landfill Gas $\leq$ 231 ppmv as H_2S	Quarterly Sulfur Analysis of Landfill Gas
S-40 Diesel Engine for Tub Grinder	BAAQMD Condition # 19864, Part 2	Low Sulfur Fuel with Sulfur Concentration $\leq$ 0.05% by weight	Records
A-50 Landfill Gas Flare	BAAQMD Condition # 19867, Part 28	$\leq$ 5.74 pounds/hour of SO_2	Quarterly Sulfur Analysis of Landfill Gas

SO_2 Discussion:

Maximum potential sulfur dioxide (SO_2) emissions are calculated below for all sources of SO_2 followed by a discussion of each applicable limit related to sulfur dioxide emissions. Definitions of the terms used below are contained in the glossary.

Potential to Emit Calculations for S-40 Diesel Engine for Tub Grinder:

Maximum potential SO_2 emissions are based on the maximum permitted fuel sulfur content of 0.05% sulfur by weight from BAAQMD Condition # 19864, Part 2 and the fuel usage limit in Condition # 19864, Part 1.
(16,000 gallons fuel/year)*(7.1 pounds fuel/gallon fuel)*(0.0005 pounds sulfur/pound fuel)/ (32.06 pounds sulfur/lbmol sulfur)*(1 lbmol SO_2/lbmol sulfur)*(64.06 pounds SO_2/lbmol SO_2)/(2000 pounds SO_2/ton SO_2) = 0.06 tons SO_2/year

Potential to Emit Calculations for S-45 Pumpmaster Engine:

Maximum potential SO_2 emissions are based on the maximum fuel sulfur content of 0.5% sulfur by weight from BAAQMD Regulation 9-1-304 and the fuel usage limit in Condition # 17842, Part 2.
(13,728 gallons fuel/year)*(7.1 pounds fuel/gallon fuel)*(0.005 pounds sulfur/pound fuel)/ (32.06 pounds sulfur/lbmol sulfur)*(1 lbmol SO_2/lbmol sulfur)*(64.06 pounds SO_2/lbmol SO_2)/(2000 pounds SO_2/ton SO_2) = 0.49 tons SO_2/year

Potential to Emit Calculations for S-46 Tipper Engine:

Maximum potential SO_2 emissions are based on the maximum fuel sulfur content of 0.5% sulfur by weight from BAAQMD Regulation 9-1-304 and the fuel usage limit in Condition # 17843, Part 2.
(11,981 gallons fuel/year)*(7.1 pounds fuel/gallon fuel)*(0.005 pounds sulfur/pound fuel)/ (32.06 pounds sulfur/lbmol sulfur)*(1 lbmol SO_2/lbmol sulfur)*(64.06 pounds SO_2/lbmol SO_2)/(2000 pounds SO_2/ton SO_2) = 0.42 tons SO_2/year

Potential to Emit Calculations for S-47 PACO Water Pump Engine:

Maximum potential SO_2 emissions are based on the maximum fuel sulfur content of 0.5% sulfur by weight from BAAQMD Regulation 9-1-304 and the fuel usage limit in Condition # 17844, Part 2.
(9,984 gallons fuel/year)*(7.1 pounds fuel/gallon fuel)*(0.005 pounds sulfur/pound fuel)/ (32.06 pounds sulfur/lbmol sulfur)*(1 lbmol SO_2/lbmol sulfur)*(64.06 pounds SO_2/lbmol SO_2)/(2000 pounds SO_2/ton SO_2) = 0.35 tons SO_2/year

Potential to Emit Calculations for S-48 Retec Power Screens Engine:

Maximum potential SO_2 emissions are based on the maximum fuel sulfur content of 0.5% sulfur by weight from BAAQMD Regulation 9-1-304 and the fuel usage limit in Condition # 17845, Part 2.
(12,979 gallons fuel/year)*(7.1 pounds fuel/gallon fuel)*(0.005 pounds sulfur/pound fuel)/

(32.06 pounds sulfur/lbmol sulfur)*(1 lbmol SO_2/lbmol sulfur)*(64.06 pounds SO_2/lbmol SO_2)/(2000 pounds SO_2/ton SO_2) = 0.46 tons SO_2/year

Potential to Emit Calculations for S-49 Diesel Engine for Back-up Generator Engine:

Maximum potential SO_2 emissions are based on the maximum fuel sulfur content of 0.5% sulfur by weight from BAAQMD Regulation 9-1-304 and a typical back-up generator operating rate of 500 hours/year.
(5.0 gallons fuel/hour)*(7.1 pounds fuel/gallon fuel)*(0.005 pounds sulfur/pound fuel)/
(32.06 pounds sulfur/lbmol sulfur)*(1 lbmol SO_2/lbmol sulfur)*(64.06 pounds SO_2/lbmol SO_2)*(500 hours/year)/(2000 pounds SO_2/ton SO_2) = 0.09 tons SO_2/year

Potential to Emit Calculations for S-50 Leachate Vaporator:

Maximum potential SO_2 emissions are based on the maximum permitted total reduced sulfur compound concentration of 231 ppmv as H_2S from BAAQMD Condition # 19867, Part 18 and the maximum permitted landfill gas usage limit in BAAQMD Condition # 19609, Part 4.
(87,600,000 ft^3 LFG/year)*(231 ft^3 H_2S/10^6 ft^3 LFG)/(387 ft^3 H_2S/lbmol H_2S)*
(1 lbmol SO_2/1 lbmol H_2S)*(64.06 pounds SO_2/lbmol SO_2)/(2000 pounds SO_2/ton SO_2)
= 1.67 tons SO_2/year

Potential to Emit Calculations for the A-50 Landfill Gas Flare:

Maximum potential SO_2 emissions are based on the maximum permitted total reduced sulfur compound concentration of 231 ppmv as H_2S from BAAQMD Condition # 19867, Part 18 and the maximum permitted landfill gas usage limit in BAAQMD Condition # 19867, Part 20.
(1,314,000,000 ft^3 LFG/year)*(231 ft^3 H_2S/10^6 ft^3 LFG)/(387 ft^3 H_2S/lbmol H_2S)*
(1 lbmol SO_2/1 lbmol H_2S)*(64.06 pounds SO_2/lbmol SO_2)/(2000 pounds SO_2/ton SO_2)
= 25.12 tons SO_2/year

The maximum potential SO_2 emissions from all the sources above are 28.66 tons/year.

BAAQMD Regulation 9-1-301: As discussed below for BAAQMD Regulations 9-1-302 and 9-1-304, this facility will be subject to federally enforceable limits, which will ensure compliance with the Regulation 9-1-302 gas stream emission limit of 300 ppmv of SO_2 in the exhaust from the flare and the leachate vaporator and with the Regulation 9-1-304 fuel sulfur content limit of 0.5% sulfur by weight. Based on modeling analyses conducted at another landfill site, sources complying with the Regulation 9-1-302 or 9-1-304 limits are not expected to result in an excess of the ground level concentration limits listed in Regulation 9-1-301. Monitoring for ground level SO_2 concentrations in addition to the proposed landfill gas monitoring, annual source testing, and record keeping requirements would not be appropriate.

BAAQMD Regulation 9-1-302: This facility will be subject to a federally enforceable limit of 231 ppmv of TRS in the landfill gas (BAAQMD Condition # 19867, Part 18). As shown by the calculation below (the landfill gas is assumed to contain a minimum of 40% methane), this limit will ensure compliance with the BAAQMD Regulation 9-1-302 emission limit of 300 ppmv of SO_2 in the exhaust.
(231 scf H_2S / 10^6 scf LFG)*(1 scf SO_2/1 scf H_2S)/(4.0186 sdcf flue gas at 0% O_2 / scf LFG)
= 5.75E-5 scf SO_2 / sdcf flue gas at 0% O_2 = 58 ppmv of SO_2 at 0% O_2, dry basis

Staff has proposed permit conditions (BAAQMD Condition # 19867, Part 31) that require the landfill gas to be analyzed quarterly for total reduced sulfur compounds The margin of compliance with this limit is (300/58) more than 5 to 1. Since the margin of compliance is high and sulfur dioxide emissions are not substantial, quarterly monitoring of the landfill gas is appropriate for demonstrating compliance with this limit.

BAAQMD Regulation 9-1-304: Staff has proposed permit conditions that require this facility to maintain records of vendor-certified sulfur content for all fuels burned in the diesel engines (S-40, S-45, S-46, S-47, S-48, and S-49). The use of vendor certification is a standard method of monitoring for compliance with a liquid fuel sulfur content limit.

BAAQMD Condition # 19864, Part 2: Staff has proposed permit conditions that require this facility to maintain records of vendor-certified sulfur content for all fuels burned in this diesel engine (S-40). The use of vendor certification is a standard method of monitoring for compliance with a liquid fuel sulfur content limit.

BAAQMD Condition # 19867, Part 18: Staff has proposed permit conditions that require quarterly testing for the concentration of total reduced sulfur compounds in the landfill gas (BAAQMD Condition # 19867, Part 31). Recent testing at other Bay Area landfills indicates that the TRS concentration in the landfill gas does not vary appreciable. Therefore, quarterly testing is expected to be adequate for demonstrating compliance with this limit.

BAAQMD Condition # 19867, Part 28: As shown by the calculation below, the landfill gas sulfur concentration limit from Part 18 is equivalent to the hourly emission limit in Part 28.
(3,600,000 ft^3 LFG/day)/(24 hours/day)*(231 ft^3 $H_2S/10^6$ ft^3 LFG)/(387 ft^3 H_2S/lbmol H_2S)*
(1 lbmol SO_2/1 lbmol H_2S)*(64.06 pounds SO_2/lbmol SO_2) = 5.74 pounds SO_2/year
Staff has proposed permit conditions (BAAQMD Condition # 19867, Part 31) that require quarterly landfill gas analyses to show compliance with the 231 ppmv of TRS limit. Recent testing at other Bay Area landfills indicates that the TRS concentration in the landfill gas does not vary appreciably. Therefore, quarterly testing is expected to be adequate for demonstrating compliance with this limit.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-5 Redwood Landfill	BAAQMD 6-301	Ringelmann 1.0	Visual Observation and Records of Site Watering and Road Cleaning Events
S-25 Yard and Green Waste Stockpiles, S-28 Co-Compost Biosolids Feed Stockpiles, S-34 Active Compost and Co-Compost Windrows and Associated Activities, S-35 Compost and Co-Compost Curing Piles and Associated Activities, S-37 Compost and Co-Compost Final Product Storage Piles and Associated Activities, S-38 On-Site Material Hauling, S-39 Trommel Screening Processes, S-41 Yard and Green Waste Shredding Operations, and S-42 Soil and Cover Material Stockpiles	BAAQMD 6-301	Ringelmann 1.0	Visual Observation of Sources During Operation
S-50 Leachate Vaporator and A-50 Landfill Gas Flare	BAAQMD 6-301	Ringelmann 1.0	None
S-40 Diesel Engine for Tub Grinder, S-45 Pumpmaster Engine, S-46 Tipper Engine, S-47 PACO Water Pump Engine, S-48 Retec Power Screens Engine, and S-49 Diesel Engine for Back-up Generator	BAAQMD 6-303	Ringelmann 2.0	None

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-40 Diesel Engine for Tub Grinder, S-45 Pumpmaster Engine, S-46 Tipper Engine, S-47 PACO Water Pump Engine, S-48 Retec Power Screens Engine, and S-49 Diesel Engine for Back-up Generator	BAAQMD 6-310	0.15 gr/dscf	None
S-50 Leachate Vaporator and A-50 Landfill Gas Flare	BAAQMD 6-310	0.15 gr/dscf	None
S-39 Trommel Screening Processes and S-41 Yard and Green Waste Shredding Operations	BAAQMD 6-311	$E = 0.026(P)^{0.67}$ where: E = Allowable Emission Rate (lb/hr); and P = Process Weight Rate (lb/hr) Maximum Allowable Emission Rate = 40 lb/hr For P >57,320 lb/hr	None
A-50 Landfill Gas Flare	BAAQMD Condition # 19867, Part 27	$\leq$ 3.56 pounds/hour	None

PM Discussion:

Maximum potential PM_{10} emissions are described below for sources listed above that have a PM limit and no proposed monitoring for that limit.

Potential to Emit for S-50 Leachate Vaporator and A-50 Landfill Gas Flare:

Detailed emission calculations are presented in Application # 17639. Maximum permitted PM_{10} emissions from S-50 are 9.78 tons/year of PM_{10} (0.20 tons/year from landfill gas combustion and 9.58 tons/year from leachate evaporation). The leachate vapors are vented to the A-50 Landfill Gas Flare to control organic emissions. The flare achieves no control for particulate matter in the leachate vapors. The A-50 Landfill Gas Flare emits an additional 6.02 tons/year of PM_{10} due to landfill gas combustion. Therefore, total emissions from S-50 and A-50 are 15.80 tons/year of PM_{10}.

Application # 17639 is also the origin of the maximum permitted emission rate for the flare of 3.56 pounds per hour of PM (Condition # 19867, Part 27). An initial compliance demonstration test for the flare and vaporator, which was conducted in August 1998, found that PM emissions from the flare were 0.222 pounds/hour (0.0026 grains/dscf @ 12% CO_2) with the vaporator off and 0.139 pounds/hour (0.0018 grains/dscf @ 12% CO_2) with the vaporator on. Actual emissions were less than 10% of the maximum permitted emission rate and less than 2% of the Regulation 6-310 limit. Since venting the vaporator to the flare resulted in no additional PM emissions, staff concludes that the emission calculations in Application # 17639 overestimated emissions. Based on the 1998 source test results, actual PM_{10} emissions are expected to be less than 2 tons/year from S-50 and A-50 combined.

Potential to Emit Calculations for Diesel Engines (S-40, S-45, S-46, S-47, S-48, and S-49):

The maximum potential PM_{10} emissions from S-40 are based on vendor specified emission rates and maximum permitted throughput. For all other diesel engines, the PM_{10} emissions are based on an AP-42 emission factor (0.0022 pounds/bhp-hour) and either the maximum permitted operating rate or for S-49, the typical back-up generator operating rate of 500 hours/year.

S-40: (9.0E-4 pounds PM_{10}/bhp-hour)*(505 bhp)*(586 hours/year)/(2000 pounds/ton)
= 0.13 tons/year of PM_{10}

S-45: (0.0022 pounds PM_{10}/bhp-hour)*(95 bhp)*(2496 hours/year)/(2000 pounds/ton)
= 0.26 tons/year of PM_{10}

S-46: (0.0022 pounds PM_{10}/bhp-hour)*(94 bhp)*(2496 hours/year)/(2000 pounds/ton)
= 0.26 tons/year of PM_{10}

S-47: (0.0022 pounds PM_{10}/bhp-hour)*(80 bhp)*(2496 hours/year)/(2000 pounds/ton)
= 0.22 tons/year of PM_{10}

S-48: (0.0022 pounds PM_{10}/bhp-hour)*(102 bhp)*(2496 hours/year)/(2000 pounds/ton)
= 0.28 tons/year of PM_{10}

S-49: (0.0022 pounds PM_{10}/bhp-hour)*(102 bhp)*(500 hours/year)/(2000 pounds/ton)
= 0.06 tons/year of PM_{10}

Potential to Emit Calculations for S-39 Trommel Screening Processes:

Detailed emission calculations are presented in Application # 16939. The emission factor after abatement by water sprays was determined to be 0.01213 pounds/ton. Maximum emissions are:
(0.0004 pounds/ton)*(50,000 tons/year)/(2000 pounds/ton) = 0.01 tons/year
(0.0004 pounds/ton)*(50 tons/hour) = 0.02 pounds/hour

Potential to Emit Calculations for S-41 Yard and Green Waste Shredding Operation:

Detailed emission calculations are presented in Application # 17552. The emission factor after abatement by water sprays was determined to be 0.01213 pounds/ton. Maximum emissions are:
(0.01213 pounds/ton)*(80,000 tons/year)/(2000 pounds/ton) = 0.49 tons/year
(0.01213 pounds/ton)*(50 tons/hour) = 0.61 pounds/hour

BAAQMD Regulation 6-301: Visible particulate emissions are normally not associated with combustion of gaseous fuels, such as natural gas or landfill gas. An initial compliance demonstration source test indicated that PM emissions from the flare (with the leachate vapors vented to the flare) were well below the maximum permitted emission rate of 3.56 pounds/hour indicating that particulate emissions from leachate vapor were greatly over estimated. Since violations of Ringelmann 1.0 limit are not expected, periodic monitoring for the Ringelmann limit would not be appropriate for the flare or leachate vaporator.

BAAQMD Regulation 6-303 for Tub Grinder Diesel Engine (S-40) and Small Diesel Engines (S-45, S-46, S-47, S-48, and S-49): These diesel fired engines are used to provide power either to on-site portable equipment or to operations during a power failure. Such engines generally are able to meet a Ringelmann No. 2 limit. Particulate emissions from these engines are very low (a total of 1.21 tons/year of PM_{10} from all six engines combined). Also, some of these engines (such as S-45, S-47, and S-49) operate infrequently or on an unpredictable schedule, which would make monitoring very difficult. Since the likelihood of non-compliance is low and maximum potential emissions are not significant (<2 tons/year of PM_{10} total and <0.3 tons/year of PM_{10} per engine), periodic monitoring for the Ringelmann 2.0 limit would not be appropriate for these engines.

BAAQMD Regulation 6-310 for S–40 Diesel Engine for Tub Grinder: Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Using the vendor emission factor and diesel oil data, a typical diesel oil flue gas production rate of 9190 dscf/MM BTU at 0% oxygen, and typical flue gas oxygen content of 15% O_2, the particulate grain loading in the engine exhaust is expected to be less than 0.03 grains/dscf at 15% O_2.
(9E-4 pounds PM_{10}/bhp-hour)*(505 bhp)*(7000 grains/pound)/(27.3 gallons/hour)/
(7.1 pounds/gallon)/(0.0193 MM BTU/pound)/(9190 dscf/MM BTU)*(20.9-15)/(20.9-0)
= 0.026 grains/dscf flue gas, dry, 15% O_2
The compliance margin with the Regulation 6-310 limit is more than 5:1. Periodic monitoring for compliance this limit would not be appropriate for S-40, because particulate emissions are low (0.13 tons/year of PM_{10}) and source testing for PM emissions from portable diesel engines is difficult and costly.

BAAQMD Regulation 6-310 for Small Diesel Engines (S-45, S-46, S-47, S-48, and S-49): Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Using the AP-42 emission factor and diesel oil data, a typical diesel oil flue gas production rate of 9190 dscf/MM BTU at 0% oxygen, and typical flue gas oxygen content of 15% O_2, the particulate grain loading in the exhaust from any of these small diesel engines is expected to be no more than 0.07 grains/dscf at 15% O_2.

S-45: (0.0022 pounds PM_{10}/bhp-hour)*(95 bhp)*(7000 grains/pound)/(5.5 gallons/hour)/
(7.1 pounds/gallon)/(0.0193 MM BTU/pound)/(9190 dscf/MM BTU)*(20.9-15)/(20.9-0)
= 0.059 grains/dscf flue gas, dry, 15% O_2

S-46: (0.0022 pounds PM_{10}/bhp-hour)*(94 bhp)*(7000 grains/pound)/(4.8 gallons/hour)/
(7.1 pounds/gallon)/(0.0193 MM BTU/pound)/(9190 dscf/MM BTU)*(20.9-15)/(20.9-0)
= 0.068 grains/dscf flue gas, dry, 15% O_2

S-47: (0.0022 pounds PM_{10}/bhp-hour)*(80 bhp)*(7000 grains/pound)/(4.0 gallons/hour)/(7.1 pounds/gallon)/(0.0193 MM BTU/pound)/(9190 dscf/MM BTU)*(20.9-15)/(20.9-0) = 0.069 grains/dscf flue gas, dry, 15% O_2

S-48: (0.0022 pounds PM_{10}/bhp-hour)*(102 bhp)*(7000 grains/pound)/(5.2 gallons/hour)/(7.1 pounds/gallon)/(0.0193 MM BTU/pound)/(9190 dscf/MM BTU)*(20.9-15)/(20.9-0) = 0.068 grains/dscf flue gas, dry, 15% O_2

S-49: (0.0022 pounds PM_{10}/bhp-hour)*(102 bhp)*(7000 grains/pound)/(5.0 gallons/hour)/(7.1 pounds/gallon)/(0.0193 MM BTU/pound)/(9190 dscf/MM BTU)*(20.9-15)/(20.9-0) = 0.070 grains/dscf flue gas, dry, 15% O_2

The compliance margin with the Regulation 6-310 limit is more than 2:1. Periodic monitoring for compliance this limit would not be appropriate for these small diesel engines, because particulate emissions are low (1.08 tons/year of PM_{10} from all 5 engines combined) and source testing for PM emissions from portable or standby engines is difficult and costly.

BAAQMD Regulation 6-310 for S-50 Leachate Vaporator and A-50 Landfill Gas Flare: Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. As discussed above in the potential to emit calculations for these sources, the 1998 initial compliance demonstration test found that the particulate concentration from A-50 was less than 0.003 grains/dscf (while A-50 was burning landfill gas only) and less than 0.002 grains/dscf (while S-50 was venting to A-50). Since the Regulation 6-310 grain loading limit is far above any expected PM emissions with a compliance ratio (limit/emissions) of more than 50:1, it would not be appropriate to add periodic monitoring for this standard.

BAAQMD Regulation 6-311 for S-39 Trommel Screening Processes and S-41 Yard and Green Waste Shredding Operation:
BAAQMD Regulation 6-311 limits particulate matter emissions according to the process weight rate. For any process weight rate over 28.66 ton/hr, the particulate emission rate is limited to 40 lb/hr. Since the maximum processing rates for S-39 and S-41 are both 50 tons/hour, the maximum emission rate is 40 tons/hour for each source. As shown in the potential to emit calculations above, S-39 and S-41 are expected to emit less than 1.0 pounds/hour of PM_{10}. The compliance margins with the Regulation 6-311 limit are more than 40:1. Periodic compliance monitoring for these limits would not be appropriate, because the compliance margins are very high, particulate emissions are low, and the source testing for PM emissions from S-39 and S-41 would be difficult and costly.

BAAQMD Condition # 19867, Part 27 for A-50 Landfill Gas Flare: This part limits PM emissions from the flare to 3.56 pounds/hour. As discussed above in the potential to emit calculations for the flare and vaporator, the 1998 initial compliance demonstration test found that the particulate emissions from A-50 were 0.222 pounds/hour (while A-50 was burning landfill gas only) and 0.139 pounds/hour (while S-50 was venting to A-50). Since the condition limit is far above any expected PM emissions with a compliance ratio (limit/emissions) of more than 16:1, it would not be appropriate to add periodic monitoring for this standard.

Organic Compounds

S# & Description	Limit Citation	Federally Enforceable Limit	Monitoring
S-2 Sewage Sludge Storage, Main Pond	BAAQMD 8-2-301	Total Carbon $\leq$ 15 pounds/day or $\leq$ 300 ppm, dry basis	None
S-28 Co-Compost Biosolids Feed Stockpiles, S-34 Active Compost and Co-Compost Windrows and Associated Activities, S-35 Compost and Co-Compost Curing Piles and Associated Activities, and S-37 Compost and Co-Compost Final Product Storage Piles and Associated Activities	BAAQMD 8-2-301	Total Carbon $\leq$ 15 pounds/day or $\leq$ 300 ppm, dry basis	None
S-5 Redwood Landfill	BAAQMD 8-2-301	Total Carbon $\leq$ 15 pounds/day or $\leq$ 300 ppm, dry basis	Surface Emission Testing and Records
S-50 Leachate Vaporator	BAAQMD 8-2-301	Total Carbon $\leq$ 15 pounds/day or $\leq$ 300 ppm, dry basis	Daily Records and Operating Restrictions
S-5 Redwood Landfill (aeration of contaminated soil)	BAAQMD 8-40-118	150 pounds of organic compounds per project and TAC emissions < trigger levels in BAAQMD Table 2-1-316	Records
S-5 Redwood Landfill	BAAQMD Condition # 19867, Part 18	750 ppmv of NMOC, as C_6, in landfill gas	Annual Landfill Gas Characterization Analysis
A-50 Landfill Gas Flare	BAAQMD 8-34-301.3	98% removal of NMOC by weight OR Outlet Concentration < 30 ppmv of NMOC, expressed as methane, @ 3% O_2, dry basis	Annual Source Test and Records
S-50 Leachate Vaporator	BAAQMD 8-34-301.4	98% removal of NMOC by weight OR Outlet Concentration < 120 ppmv of NMOC, expressed as methane, @ 3% O_2, dry basis	Annual Source Test and Records

Organic Compounds

S# & Description	Limit Citation	Federally Enforceable Limit	Monitoring
S-50 Leachate Vaporator and A-50 Landfill Gas Flare	40 CFR 60.752(b)(2)(iii)(B)	98% removal of NMOC by weight OR Outlet Concentration < 20 ppmv of NMOC, expressed as hexane, @ 3% O_2, dry basis	Annual Source Test and Records
S-50 Leachate Vaporator	BAAQMD Condition # 19609, Part 7	98% removal of NMOC by weight OR Outlet Concentration < 15 ppmv of NMOC, expressed as hexane, @ 3% O_2, dry basis	Annual Source Test and Records
A-50 Landfill Gas Flare	BAAQMD Condition # 19867, Part 23	98% removal of NMOC by weight OR Outlet Concentration < 15 ppmv of NMOC, expressed as hexane, @ 3% O_2, dry basis	Annual Source Test and Records

Organic Compounds Discussion:

Maximum potential organic emissions are described below for sources listed above that have an organic compound limit and no proposed monitoring for that limit.

Potential to Emit for Sewage Sludge Storage Pond (S-2):
Maximum potential total carbon emissions from the Sewage Sludge Storage Pond (S-2) are determined from the Regulation 8-2-301 limit of 15 pounds/day of total carbon.
(15 pounds/day)*(365 days/year)/(2000 pounds/ton) = 2.74 tons/year

Potential to Emit for Composting Operations (S-28, S-34, S-35, and S-37):
Maximum potential total carbon emissions from the Composting Operations (S-28, S-34, and S-35) are determined from the Regulation 8-2-301 limit of 15 pounds/day of total carbon.
(15 pounds/day)*(365 days/year)/(2000 pounds/ton) = 2.74 tons/year from each source

The total potential to emit from all sludge storage and composting operations is 13.7 tons/year as TOC.

BAAQMD Regulation 8-2-301 for S-2, S-28, S-34, S-35, and S-37: Regulation 8-2-301 limits emissions from any operation to either 15 pounds/day of total carbon or less than 300 ppmv, dry, in an exhaust point. All organic emissions from these sources are fugitive emissions. From historical records, the District estimates that the emissions due to sludge handling or composting operations will be no more than 0.010 pounds of POC per ton of material processed. This emission rate will not occur all at any one source but will rather be distributed among the various

operations (sludge storage ponds, feed stockpiles, active windrows, curing piles, and final product stockpiles).

For S-2, maximum emissions are calculated based on the maximum sludge acceptance rates (1000 wet tons per day and 200,750 wet tons per year from Condition # 19867, Part 3).
(1000 wet tons/day)*(0.01 pounds/ton) = 10.0 pounds/day

For S-28, S-34, S-35, and S-37, maximum emissions are calculated based on the maximum throughput rates listed in Condition # 13123, Part 1 and a typical operating rate of 252 days/year.
(50,000 tons/year)*(0.01 pounds/ton)/(252 days/year) = 2.0 pounds/day

Total calculated emissions for S-2, S-28, S-34, S-35, and S-37 are 12.0 pounds/day compared to the Regulation 8-2-301 limit of 75 pounds/day (15 pounds/day/source times 5 sources). The compliance ratio (limit/emissions) for these operations is more than 6:1 for all sources combined. Since Regulation 8, Rule 2 does not have an approved test method for monitoring fugitive organic emissions from a source, compliance with Regulation 8-2-301 is typically demonstrated by using emission calculations to show compliance with the 15 pounds per day total carbon limit. The calculations above show that all sources (S-2, S-28, S-34, S-35, and S-37) will comply with the BAAQMD Regulation 8-2-301 limit. Compliance with the throughput limits identified above will be demonstrated by record keeping pursuant to Condition # 19867, Part 5 and Condition # 13123, Part 2. Since the compliance margin is high and the facility will be periodically monitoring for compliance with the throughput limits listed above, it would not be appropriate to require additional periodic monitoring for the Regulation 8-2-301 limit.

BAAQMD Regulation 8-2-301 for S-5 Redwood Landfill: This limit applies to the handling of VOC-laden soil that is not considered "contaminated" pursuant to Regulation 8, Rule 40. Such VOC-laden soil may contain up to 50 ppmw of VOC. All VOC emissions from this operation will be fugitive. As discussed earlier, Regulation 8, Rule 2 does not have an approved test method for monitoring fugitive organic emissions from a source. Therefore, compliance with Regulation 8-2-301 is typically demonstrated by using emission calculations to show compliance with the 15 pounds per day total carbon limit. However in this case, the Applicant has requested to use the Regulation 8-40-604 surface VOC emission testing procedure to show the soil is not contaminated. By the definition of contaminated soil in Regulation 8-40-205, VOC emissions from the soil will be < 50 ppmv of VOC expressed as methane, which is equivalent to < 50 ppmv of total carbon. Therefore, any use of soil that is not "contaminated" will comply with Regulation 8-2-301, because total carbon emissions will not exceed 300 ppmv of total carbon. Using this procedure to show compliance with Regulation 8-2-301 requires a permit shield as discussed in Section IX below. Condition # 19867, Part 14 describes the limits and procedures that are used to ensure compliance with this limit. The Permit Holder is also required to limit the acceptance rate for VOC-laden soil and to maintain records of the VOC-laden soil acceptance rate and the VOC Content of this soil. The testing and record keeping requirements in Condition # 19867, Part 14 will adequately demonstrate compliance with the limits in Part 14 and with Regulation 8-2-301.

BAAQMD Regulation 8-2-301 for S-50 Leachate Vaporator: This limit applies to the organic emissions from the S-50 Leachate Vaporator after control by the A-50 Landfill Gas Flare. From Application # 17639, uncontrolled total organic emissions from S-50 will be 18.62 pounds/day

based on processing 7200 gallons/day of leachate. The A-50 Flare will achieve at least 98% control for NMOC (resulting in 0.37 pounds/day of organic emissions due to leachate vapors, after control) or will emit no more than 15 ppmv of NMOC at 3% O_2, dry. Either of these A-50 requirements will ensure compliance with the Regulation 8-2-301 limits of 15 pounds/day of TOC or 300 ppmv of TOC, dry. The compliance margin is either 40:1 based on the daily emission rate limit or 20:1 based on the emission concentration limit. Condition # 19609, Part 1 limits the leachate throughput at S-50 to 7200 gallons/day, Part 2 requires that all leachate vapors be controlled by A-50, and Part 8 requires daily records to show compliance with the throughput limit. These existing operating requirements and daily record keeping requirements for S-50 and the temperature monitoring and annual source testing requirements for A-50 (Condition # 19867, Parts 22 and 30) will adequately demonstrate compliance with Regulation 8-2-301 for S-50.

BAAQMD Regulation 8-40-118: This regulation limits the amount of organic emissions that may occur from contaminated soil aeration projects that are exempt from the Regulation 8-40-301 prohibition against aerating contaminated soil. Staff is proposing to use the existing daily record keeping requirements to demonstrate compliance with this limit. Record keeping is a standard method of demonstrating compliance with this type of an exemption limit.

BAAQMD Condition # 19867, Part 18 for S-5 Redwood Landfill:
This limit was used to determine cumulative emission increases (in tons/year of POC) for several recent permit applications. Staff has proposed permit conditions that require testing for the concentration of total non-methane organic compounds (NMOC) in the landfill gas on an annual basis (BAAQMD Condition # 19867, Part 31). Since this limit is related to an annual emission limit, annual testing is adequate for demonstrating compliance with this limit.

BAAQMD Regulations 8-34-301.3 and 8-34-301.4, 40 CFR 60.752(b)(2)(iii)(B) and BAAQMD Condition # 19609, Part 7, and BAAQMD Condition # 19867, Part 23 for S-50 Leachate Vaporator and A-50 Landfill Gas Flare:
BAAQMD Regulation 8-34-412 requires annual source testing for control devices that are subject to the Regulation 8-34-301.3 or 8-34-301.4 limits and that are located at facilities that are required to have Title V operating permits. Staff is proposing to add BAAQMD Condition # 19609, Part 9 (for S-50) and BAAQMD Condition # 19867, Part 30 (for A-50) to clarify the Regulation 8-34-412 annual source testing requirement. Annual source testing is an adequate method of demonstrating compliance with the NMOC emission limit for the S-50 Leachate Vaporator, which burns no more than 167 scfm of landfill gas and is operated intermittently. Annual source testing combined with continuous monitoring of the flare combustion zone temperature (an existing requirement per Condition # 19867, Part 22) is the standard monitoring method for demonstrating compliance with NMOC emission limits at landfill gas fired flares.

H_2S Sources

S# & Description	Emission Limit Citation	Emission Limit (Not Federally Enforceable)	Monitoring
S-2 Sewage Sludge Storage, Main Pond	BAAQMD 9-2-301	Property line ground level limits: ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	None
S-5 Redwood Landfill	BAAQMD 9-2-301	Property line ground level limits: ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	None
S-28 Co-Compost Biosolids Feed Stockpiles, S-34 Active Compost and Co-Compost Windrows and Associated Activities, and S-35 Compost and Co-Compost Curing Piles and Associated Activities	BAAQMD 9-2-301	Property line ground level limits: ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	None
S-50 Leachate Vaporator	BAAQMD 9-2-301	Property line ground level limits: ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	None
A-50 Landfill Gas Flare	BAAQMD 9-2-301	Property line ground level limits: ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	None

Hydrogen Sulfide (H_2S) Discussion:

BAAQMD Regulation 9-2-301: Hydrogen sulfide can be detected by its odor at concentrations as low as 0.0005 ppmv and is generally identified by its characteristic rotten egg smell at a concentration of 0.005 ppmv or less. Therefore, H_2S emissions are typically discovered by smell well before the concentration approaches the lowest Regulation 9-2-301 emission limit of 0.03 ppmv. The District rarely receives complaints about hydrogen sulfide odors from Bay Area landfills. During the last year, there have been four alleged odor complaints but no confirmed odor complaints against this facility. None of the four alleged complaints described the smell as the rotten egg odor that is characteristic of H_2S emissions. Since H_2S odors have not been detected at this facility, the concentration of H_2S at the property line is expected to be well below the Regulation 9-2-301 limits. Furthermore, the maximum expected H_2S emissions are not

expected to be significant and the BAAQMD Regulation 9-2-301 emission limits are not federally enforceable. Monitoring for ground level H_2S concentrations would not be appropriate when no H_2S odor problem exists.

Other Limits

S# & Description	Limit Citation	Federally Enforceable Limit	Monitoring
S-5 Redwood Landfill (aeration of contaminated soil)	BAAQMD 8-40-116.1	1 cubic yard aerated per project	Records
S-5 Redwood Landfill (aeration of contaminated soil)	BAAQMD 8-40-116.2	8 cubic yards aerated per project, provided organic content ≤ 500 ppmw, and limited to 1 exempt project per 3 month period	Records
S-5 Redwood Landfill (aeration of contaminated soil)	BAAQMD 8-40-117	aeration of soil contaminated by accidental spillage of ≤ 5 gallons of liquid organic compounds	Records
S-5 Redwood Landfill (aeration of contaminated soil)	BAAQMD 8-40-118	150 pounds of organic compounds per project and TAC emissions < trigger levels in BAAQMD Table 2-1-316	Records
S-5 Redwood Landfill (aeration of contaminated soil)	BAAQMD 8-40-301	Aeration Prohibited for Soil with > 50 ppmw VOC, unless exempt per 8-40-116, 117, or 118	Records

Other Limits

S# & Description	Limit Citation	Non-Federally Enforceable Limit	Monitoring
S-5 Redwood Landfill	BAAQMD Condition # 19867, Part 18b	Concentration Limits for TACs in Landfill Gas: Compound — PPBV acrylonitrile 280 benzene 340 carbon tetrachloride 70 chloroform 70 1,4 dichlorobenzene 400 1,1 dichloroethane 150 ethylene dibromide 70 ethylene dichloride 70 methylene chloride 320 perchloroethylene 450 1,1,2,2 tetrachloroethane 70 trichloroethylene 250 vinyl chloride 880	Annual Landfill Gas Characterization Analysis
A-50 Landfill Gas Flare	BAAQMD Condition # 19867, Part 24	Destruction Efficiency ≥ 80% by weight for any TAC or HAP	None

Other Limits Discussion:

BAAQMD Regulation 8-40-116.1, 8-40-116.2, 8-40-117, 8-40-118, 8-40-301: These regulations limit the amount of contaminated soil that may be aerated at a site. Staff is proposing to use the existing daily record keeping requirements to demonstrate compliance with these limits. Record keeping is a standard method of demonstrating compliance with these types of throughput or usage rate limits and prohibitions.

BAAQMD Condition # 19867, Part 18b: These TAC concentration limits were used in conjunction with the destruction efficiency limit discussed below to calculate annual TAC emissions. These annual TAC emission estimates were necessary for a risk screening analysis that was required pursuant to the District's Risk Management Policy. Therefore, these TAC concentration limits are not federally enforceable. An exceedence of one of these limits requires the Permit Holder to submit a permit application so that staff can conduct a new risk screening analysis, if required. Analysis of the landfill gas is a standard method of demonstrating compliance with TAC concentration limits in landfill gas. Since the TAC concentration limits reflect annual emission limits, an annual analysis of the landfill gas is adequate.

BAAQMD Condition # 19867, Part 24: This destruction efficiency was used in conjunction with the landfill gas concentration limits discussed above to calculate annual TAC emissions. These annual TAC emission estimates were necessary for a risk screening analysis that was required pursuant to the District's Risk Management Policy. Therefore, this destruction efficiency requirement is not federally enforceable. An exceedence of this limit requires the Permit Holder to submit a permit application so that staff can conduct a new risk screening analysis, if required. AP-42 indicates that landfill gas flares are expected to achieve greater than 98% destruction for individual halogenated and non-halogenated species. The assumed TAC destruction efficiency identified in Part 24 (80% destruction of any individual TAC) is therefore quite conservative. Since the limit in Part 24 is not expected to be exceeded, routine analysis to demonstrate compliance with this non-federally enforceable limit is not justified.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section VI of the permit.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in an MFR permit explaining that specific federally enforceable regulations and standards are not applicable to a source or group of sources, or (2) A provision in an MFR permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements

for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, record keeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

The District added the second type of permit shield for the S-5 Redwood Landfill, subsuming the Regulation 8, Rule 2 VOC test procedure with the Regulation 8, Rule 40 VOC test procedure. This was done so that the Regulation 8-2-601 VOC test procedure, which is not well suited to monitoring fugitive emissions, would not have to be used to monitor surface emissions of VOC-laden soil.

Regulation 8, Rule 2 "Miscellaneous Operations" only applies to sources of precursor organic compounds that are not otherwise limited by Regulation 8 or Regulation 10 rules. In the case of the S-5 Redwood Landfill, Regulation 8, Rule 2 would apply only to operations involving VOC-laden soil, which is soil that contains some VOC but is not "contaminated" soil as defined in Regulation 8-40-205. Soil which has an organic content exceeding 50 ppmw or that registers an organic concentration greater than 50 ppmv (expressed as methane, C1) is subject to Regulation 8, Rule 40.

Regulation 8-2-301 places a 15 pounds per day limit on VOC emissions having a concentration greater than 300 ppmv (total carbon, dry basis). Since soil found not to be contaminated using the procedures of Regulation 8-40-604 would have a surface VOC concentration less than 50 ppmv (expressed as methane, C1), it can reasonably be assumed that the concentration is also less than 300 ppmv (total carbon, dry basis) as determined by the procedures of Regulation 8-2-601. Therefore, this monitoring is sufficient to assure compliance with Regulation 8-2-301.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

A June 16, 2003 office memorandum, from the Director of Compliance and Enforcement to the Director of Permit Services, presents a review of the compliance record of Redwood Landfill, Inc. (Site #A1179). The Compliance and Enforcement Division staff has reviewed the records for Site #A1179 for the period between June 13, 2002 through June 13, 2003. This review was initiated as part of the District evaluation of an application by Redwood Landfill for a Title V permit. During the review period:

- There were no Notices of Violation issued during this review period.
- The District received four complaints alleging odors originating from this facility. The complaints were not confirmed.
- There were no monitor excesses or equipment breakdowns reported or documented by District staff.
- The facility is not operating under a Variance or an Order for Abatement from the District's Hearing Board.

The owner initially certified that all equipment was operating in compliance on May 25, 2000. The owner subsequently certified that all equipment was operating in compliance on March 3, 2003. No non-compliance issues have been identified to date.

F. Differences between the Application and the Proposed Permit:

The Title V permit application was originally submitted on March 12, 1997 and was revised on May 25, 2000. The May 25, 2000 version of the application is the basis for the proposed Title V permit. As discussed in Section C.II of this report, the equipment list has changed since the permit application was originally submitted in 1997 and since it was last revised in May 2000. The following devices have been removed from the lists of permitted equipment: S-1, S-3, S-4, S-24, S-28, S-27, S-29, S-30, S-31, S-32, S-33, S-36, S-44, S-101, S-102, S-103, S-104, S-105, S-106, S-107, S-108, A-5, A-26, A-30, A-32, A-44, A-101, A-102, and A-103. The following devices have been added to this permit: S-40, S-41, S-42, S-45, S-46, S-47, S-48, S-49, S-55, and A-41. Note that several of these sources were previously listed as exempt diesel engines. The Non-Retail Gasoline Dispensing Facility (S-55) located at this site was originally permitted as G # 8573 and was not issued a source number. For the purpose of this MFR Permit, G # 8573 has been linked to source number S-55 at Facility # A1179.

The applicant identified numerous applicable requirements for the equipment located at this facility. Most requirements were cited in a general manner. The District's proposed permit contains a detailed list of all applicable requirements for each permitted source and each permitted abatement device. In addition, the District's proposed permit contains all modifications to BAAQMD regulations and permit conditions that have been approved by BAAQMD through July 14, 2003.

After the application was submitted, EPA adopted the NESHAP for MSW Landfills (40 CFR Part 63, Subpart AAAA) on January 16, 2003. The NESHAP requirements (Subparts A and AAAA) have been included in the proposed permit, but these requirements are not applicable until January 16, 2004.

In this Permit, the District is proposing amendments to Conditions # 96, # 13123, # 14098, # 16066, # 16516, # 17842, # 17843, # 17844, # 17845, # 19609, # 19613, # 19864, # 19865, # 19866, and # 19867. The proposed revisions are described in detail in Section C.VI of this report.

APPENDIX A

BAAQMD COMPLIANCE REPORT

APPENDIX B
GLOSSARY

ACT
Federal Clean Air Act

APCO
Air Pollution Control Officer: Head of Bay Area Air Quality Management District

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

Basis
The underlying authority which allows the District to impose requirements.

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CARB
California Air Resources Board (same as ARB)

CEQA
California Environmental Quality Act

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CH4 or CH_4
Methane

CO
Carbon Monoxide

CO2
Carbon Dioxide

CT
Combustion Zone Temperature

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

EG
Emission Guidelines

EO
Executive Order

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District regulations.

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

GDF
Gasoline Dispensing Facility

H2S or H_2S
Hydrogen Sulfide

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

HHV
Higher Heating Value. The quantity of heat evolved as determined by a calorimeter where the combustion products are cooled to 60F and all water vapor is condensed to liquid.

LFG
Landfill gas

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MAX or Max.
Maximum

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MIN or Min.
Minimum

MOP
The District's Manual of Procedures.

MSW
Municipal solid waste

MW
Molecular weight

N2 or N_2
Nitrogen

NA
Not Applicable

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC
Non-methane Hydrocarbons (Same as NMOC)

NMOC
Non-methane Organic Compounds (Same as NMHC)

NOx or NO_x
Oxides of nitrogen.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

O2 or O_2
Oxygen

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2.

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Particulate Matter

PM10 or PM_{10}
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

PV or P/V Valve
Pressure/Vacuum Valve

RMP
Risk Management Plan

S
Sulfur

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2 or SO_2
Sulfur dioxide

SSM
Startup, Shutdown, or Malfunction

SSM Plan
A plan, which states the procedures that will be followed during a startup, shutdown, or malfunction, that is prepared in accordance with the general NESHAP provisions (40 CFR Part 63, Subpart A) and maintained on site at the facility.

TAC
Toxic Air Contaminant (as identified by CARB)

THC
Total Hydrocarbons (NMHC + Methane)

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC
Total Organic Compounds (NMOC + Methane, Same as THC)

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Policy

TRS
Total Reduced Sulfur

TSP
Total Suspended Particulate

VOC
Volatile Organic Compounds

VMT
Vehicle Miles Traveled

Symbols:

<	=	less than
>	=	greater than
≤	=	less than or equal to
≥	=	greater than or equal to

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft^3	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
lb	=	pound
lbmol	=	pound-mole
in	=	inches
m^2	=	square meter
m^3	=	cubic meters
min	=	minute
mm	=	million
MM	=	million
MM BTU	=	million BTU
MMcf	=	million cubic feet
Mg	=	mega grams
ppb	=	parts per billion
ppbv	=	parts per billion, by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
yd	=	yard
yd^3	=	cubic yards
yr	=	year

APPENDIX C

ENGINEERING EVALUATION FOR APPLICATION # 17552